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14.6%, $P = .05$), female gender (43.7% vs 22.0%, $P = .01$), and preoperative statin use (45.8% vs 75.6%, $P < .001$). There were no differences with respect to other comorbidities, including smoking status, presence of diabetes, renal insufficiency, anatomic factors, or open vs endovascular treatment. Ninety-seven patients underwent endovascular revascularization. The following outcomes were noted in the endovascular subset of LI and HI patients, respectively: primary-assisted patency was 71% vs 66% (P = NS), and 12-month cost per day of patency was \$166.30 ± \$77.40 vs \$22.45 ± \$12.45 ($P = .05$). Ninety-eight patients underwent open revascularization, with the following outcomes in LI and HI patients respectively: primary assisted patency was 78% vs 86% (P = NS), and the 12-month cost per day of patency was \$319.43 ± \$225.44 vs \$40.47 ± \$4.63 ($P = .07$). Amputation was eventually required in 19 of the 77 patients with critical limb ischemia. Multivariate analysis demonstrated that HI was protective against limb loss (odds ratio, 0.06; 95% confidence interval, 0.01-0.51; $P < .001$).

Conclusion: In patients undergoing femoropopliteal revascularization, income level correlates with advanced disease state presentation, advanced age (possibly a proxy for delayed presentation), and lack of statin use. Although the primary-assisted patency rate is not affected by income status, LI patients demonstrate an increased cost per day of patency and inferior limb salvage compared with HI patients. To our knowledge, these data are the first to establish a relationship between income and metrics of lower extremity revascularization success and demonstrate the financial and clinical burden associated with caring for these patients.

Prospective Randomized Trial of Routine vs Selective Shunting in Carotid Endarterectomy Based on Stump Pressure

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Background: The use of shunting in carotid endarterectomy (CEA) is controversial. Only a few randomized trials have compared routine vs selective shunting; however, none were based on stump pressure (SP). To our knowledge, this is the first randomized trial to compare the results of routine (RS) vs selective shunting (SS) based on SP.

Methods: The study randomized 200 CEA patients under general anesthesia into RS (n = 98) and SS (n = 102), where shunting was used only if systolic SP was <40 mm Hg (SSP). All patients had immediate and 30-day postoperative duplex ultrasound imaging. Analysis was done based on intention to treat.

Results: Shunting was used in 29 of 102 SS patients (28%). Clinical/demographic characteristics were comparable in both groups. Indications for CEA were also similar (42% symptomatic for RS vs 47% for SS, $P = .458$). The mean internal carotid artery diameter was also comparable (5.5 vs 5.5, $P = .685$). The mean preoperative ipsilateral and contralateral stenosis was 76% and 38% for RS ($P = .268$) vs 78% and 40% for SS ($P = .528$), respectively. The mean preoperative ipsilateral and contralateral stenoses were 79% and 56% in the shunted ($P = .634$) vs 78% and 34% in the nonshunted subgroup of SS patients $P = .002$), respectively. The mean SSP was 55.9 in RS vs 56.2 mm Hg for SS ($P = .915$). The mean SSP in the shunted vs non-shunted subgroup of SS was 33 vs 65 mm Hg ($P < .0001$). Mean clamp time in the nonshunted SS subgroup was 32 minutes. Mean shunt time was 35 minutes in RS vs 33 minutes in SS ($P = .354$). Mean operative time was 113 minutes for RS and 109 minutes for SS ($P = .252$) and 111 minutes in shunted and 108 minutes in the nonshunted subgroup ($P = .586$). Mean arteriotomy length was 4.4 cm for RS and 4.2 cm for SS ($P = .213$). Perioperative stroke rate was 0% for RS vs 2% for SS, consisting of one major and one minor stroke (neither patient was shunted; $P = .498$). No perioperative deaths occurred. The combined perioperative transient ischemic attack and stroke rates were 2% in RS vs 2.9% in SS ($P = 1$). The overall perioperative complication rates were 8.3% in RS (2 transient ischemic attacks, 3 bleeding, and 1 myocardial infarction, and 1 asymptomatic carotid thrombosis) vs 7.8% in SS (2 strokes, 1 transient ischemic attack, 3 bleeding, 1 myocardial infarction, and 1 congestive heart failure; $P = .917$).

Conclusions: Perioperative stroke/overall complication rates were somewhat similar for RS and SS based on SSP of <40 mm Hg.

Maximal Venous Outflow Velocity: A Novel Technique for Detecting Iliocaval Occlusive Disease

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Background: Compression of the left iliac vein by the overlying right iliac artery (May-Thurner Syndrome [MTS]) can cause left leg swelling due to outflow obstruction, increasing the risk for deep vein thrombosis. Discerning pathologic anatomy from normal iliocaval anatomy can be challenging, as planar imaging provides anatomic rather than functional information. Traditional duplex ultrasound (DU) interrogation of the leg provides data limited to only the infrainguinal venous system. Our hypothesis is that DU-derived maximal venous outflow velocity (MVOV) can be a useful screening tool as an adjunct to lower extremity DU to screen for patients with iliocaval obstruction.

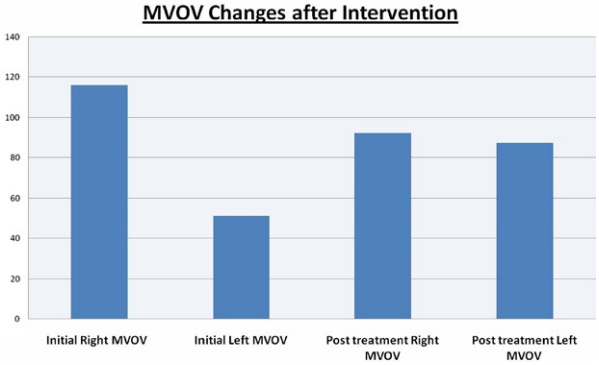

Fig 1. Maximal venous outflow velocity *(MMOV)* changes after intervention.

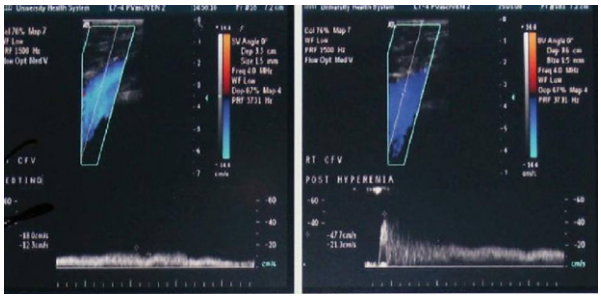

Fig 2.

Methods: MVOV studies of 14 patients with unilateral leg swelling from 2000 to 2009 were compared with a control group of 30 asymptomatic volunteers. Right and left legs of the test group and symptomatic and asymptomatic legs were compared with each other and with controls using the t test. A ratio of symptomatic to asymptomatic extremities was compared to left over right in the controls to generate an index compatible with pathologic venous impedance. The same parameters were also compared after endovenous stenting for positive venographic findings in patients with MTS.

Results: Symptomatic extremities had reduced absolute MVOVs ($P = .021$) compared with the contralateral extremity. In four patients undergoing endovascular stenting for MTS, a significant increase in MVOV of the treated leg was observed ($P = .012$), and the post-treatment MVOV measurements in the left and right legs were not significantly different ($P = .213$). On review, we found that a left-to-right MVOV index of <1.06 correlated with positive angiographic findings and success of treatment ($P = .0434$). In this same group, computed tomography with venous contrast predicted a positive venographic finding in 60% of the patients (3 of 5).

Conclusions: Because most patients with unilateral leg swelling undergo routine DU imaging to evaluate for deep vein thrombosis, MVOV studies can be obtained without added risk, exposure, and little technical cost. MVOV and a calculated index of <1.06 seems to be predictive of success of intervention, even when CT interpretation suggested otherwise.

Thoracic Endovascular Aortic Repair Does Not Alter the Natural History of Traumatic Aortic Disruption

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Background: Thoracic endovascular aortic repair (TEVAR) is an accepted treatment option for traumatic aortic disruption (TAD) despite little data on long-term outcome. We hypothesized that early TEVAR in patients with TAD would reduce deaths from aortic rupture in patients who arrive alive at the hospital.

Methods: We reviewed the medical records of 112 patients with TAD treated at a level I trauma center during a 10-year period. Medical examiner